

Claims

1. A roman shade comprising:
 - an operation box section for rotating a rotation gear as a driving ball chain is pulled down;
 - 5 a rotation shaft fitted into the rotation gear;
 - a frame surrounding the operation box and the rotation shaft and secured to a wall or ceiling; and
 - a ball chain box section including an inside gear which is fitted around the rotation shaft, a driven ball chain which has balls to be engaged into grooves defined on the inside gear so that the driven ball chain is moved in upward and downward directions as the inside gear is rotated, and a ball chain box in which the driven ball chain is compiled without being entangled.
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2. The roman shade as set forth in claim 1, wherein a guide groove for guiding movement of the ball chain is defined on a front surface of the ball chain box in a lengthwise direction of the ball chain box.
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3. The roman shade as set forth in claim 2, wherein the ball chain box is composed of front and rear cases, and a fastening piece which is defined with a ball chain insertion hole is secured to one or both of the front and rear cases.
4. The roman shade as set forth in any one of the claims 1 to 3, wherein one or more ball chain release-preventing protrusions are formed at predetermined locations inside the ball chain box.
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5. The roman shade as set forth in any one of the claims 1 to 3, wherein Velcro brand hook and loop fastener strips are attached to a front surface of the frame and an upper portion of a cloth, which is to be brought into contact with the front surface of the frame.
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6. The roman shade as set forth in claim 1, wherein the operation box section comprises:

a bracket having a body part and a tubular boss part which projects from a surface of the body part and through which the rotation shaft passes;

5 a clutch spring placed around the boss part and having large and small circumference regions which are bordered from each other by a pair of projecting ends constituting both ends of the clutch spring, so that the clutch spring is twisted to be prevented from being rotated when either one of the projecting ends is biased from the small circumference region toward the large circumference region and the clutch spring is untwisted to be freely rotated when either one of the projecting ends is biased from the large circumference region toward the small circumference region;

10 a rotation gear having a gear body which is fitted around the boss part of the bracket by way of the clutch spring and possesses an annular configuration, a ball chain-winding part which is coupled to a surface of the gear body to project in an axial direction and on which the ball chain is wound, and a pair of spring operating parts which are formed on an inner surface of the gear body and positioned in the large circumference region of the clutch spring;

15 a gear member for the rotation shaft, having a support part, a coupling part which projects from a surface of the support part and is coupled with the rotation shaft, and a pair of rotation preventing parts which project from the surface of the support part around and in parallel with the coupling part and are positioned in the large and small circumference regions of the clutch spring; and

20 a cover detachably fastened to the bracket in a state where the clutch spring, the rotation gear, and the gear member for the rotation shaft are accommodated in the bracket.

25 7. The roman shade as set forth in claim 6, wherein a separation rib is formed on the body part around the boss part of the bracket to separate the clutch

spring from the surface of the body part by a predetermined distance.

5 8. The roman shade as set forth in claim 6, wherein a first circular rib is formed on the surface of the support part of the gear member to be positioned around the boss part of the bracket and thereby prevent the clutch spring from being moved in an axial direction of the rotation shaft.

9. The roman shade as set forth in claims 6 or 8, wherein a groove is formed on an exposed surface of each spring operating part of the rotation gear, which faces the cover, and a second circular rib is formed on the surface of the support part of the gear member to be rotatably engaged into the groove.

10 10. The roman shade as set forth in claim 9, wherein the second circular rib is placed radially outward of the first circular rib.

11. A roman shade comprising:

an operation box section for rotating a rotation gear as a driving ball chain is pulled down;

15 a rotation shaft fitted into the rotation gear;

a frame surrounding the operation box and the rotation shaft and secured to a wall or ceiling; and

20 a ball chain box section including an inside gear which is fitted around the rotation shaft and driven ball chains which are connected to a cloth, so that the driven ball chains can raise and lower the cloth in conformity with a rotating direction of the inside gear.